National Institute of Environmental Health Sciences

Regional impact assessment of flooding under future climate and socio-economic scenarios for East Anglia and North West England

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Abstract:

Interactive tools developed within the RegIS project for assessing the impacts of flooding provide information to support flood management policies and analyse the performance of possible adaptation activities to climate change. This paper describes the methodologies used in the development of these tools including tidal and fluvial flooding processes with different levels of climate pressures, represented by changes in sea level and peak river flows. Potential impacts of climate change for East Anglia and North West England are explored to the 2050s using four socio-economic scenarios to represent plausible futures. This includes changes in urban land use as well as adaptive responses to flooding comprising dike upgrade and realignment options. The results indicate that future climate will increase flood risk in both regions. East Anglia is more vulnerable to climate change than North West England at the present level of protection, especially in the extensive coastal lowlands of the Fens and Broads because of the combined effects of sea-level rise and increased fluvial flows. Although the present adaptive policy of upgrading defences in East Anglia will reduce the impacts of flooding, this policy is not effective in the case of the more extreme climate change scenarios by 2050s. In this case, more extensive adaptation would be required. © 2008 Springer Science+Business Media B.V.

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Resource Description

Climate Scenario :

specification of climate scenario (set of assumptions about future states related to climate)

Special Report on Emissions Scenarios (SRES)

Special Report on Emissions Scenarios (SRES) Scenario: SRES A1, SRES A2, SRES B1, SRES B2

Communication:

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience:

audience to whom the resource is directed

Policymaker

Exposure :

weather or climate related pathway by which climate change affects health

Extreme Weather Event, Sea Level Rise

Extreme Weather Event: Flooding

Geographic Feature:

resource focuses on specific type of geography

Urban

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : United Kingdom

Health Impact:

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Low Socioeconomic Status

Resource Type:

format or standard characteristic of resource

Research Article

Socioeconomic Scenario: Other Socioeconomic Scenario

Other Socioeconomic Scenario: Regional Stewardship (RS); Global Market (GM); Regional Enterprise (RE); Global Sustainability (GS)

Timescale:

time period studied

Medium-Term (10-50 years)

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content